

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Please cancel claims 12-30 without waiver or prejudice.

1. (Original) A method, comprising:
defining a void in a sacrificial layer proximate to an active layer;
forming an overgrowth layer in the void and over portions of the sacrificial layer adjacent to the void;
defining a ridge section in the overgrowth layer; and
removing portions of the sacrificial layer to define a shank section in the overgrowth layer under the ridge section, the ridge section having a greater lateral dimension than the shank section to reduce electrical resistance between the active layer and electrical interconnects to be electrically coupled to the ridge section.

2. (Original) The method of claim 1 wherein defining the void in the sacrificial layer comprises etching the sacrificial layer with a first etching substance reactive with the sacrificial layer.

3. (Original) The method of claim 2, further comprising forming an etch stop layer between the active layer and the sacrificial layer, the etch stop layer being non-reactive with the first etching substance.

4. (Original) The method of claim 3 wherein defining the ridge section in the overgrowth layer comprises etching the overgrowth layer with a second etching substance reactive with the overgrowth layer and non-reactive with the sacrificial layer.

5. (Original) The method of claim 4 wherein removing portions of the sacrificial layer to define the shank section in the overgrowth layer comprises etching away the portions of the sacrificial layer with the first etching substance.

6. (Original) The method of claim 1, further comprising forming a planarization layer around the shank section and the ridge section of the overgrowth layer, the planarization layer comprising a polymer.

7. (Original) The method of claim 6, further comprising forming a conductive contact on top of the ridge section, the conductive contact to couple the electrical interconnects to the ridge section.

8. (Original) The method of claim 4 wherein the overgrowth layer comprises a P-type semiconductor material and the active layer comprises an intrinsic semiconductor material.

9. (Original) The method of claim 8 wherein the P-type semiconductor material comprises one of InP and AlGaAs, and wherein the intrinsic semiconductor comprises one of InGaAsP, InGaAs, and GaAs.

10. (Original) The method of claim 9 wherein the first etching substance comprises a mixture of at least two of H_2SO_4 , H_2O_2 , and H_2O , and wherein the second etching substance comprises a mixture of hydrochloric acid (HCl) and phosphoric acid (H_3PO_4).

11. (Original) The method of claim 1 wherein the ridge and shank sections of the overgrowth layer form a substantially T-shaped ridge structure.

Claims 12-30 (canceled).